FIG 1

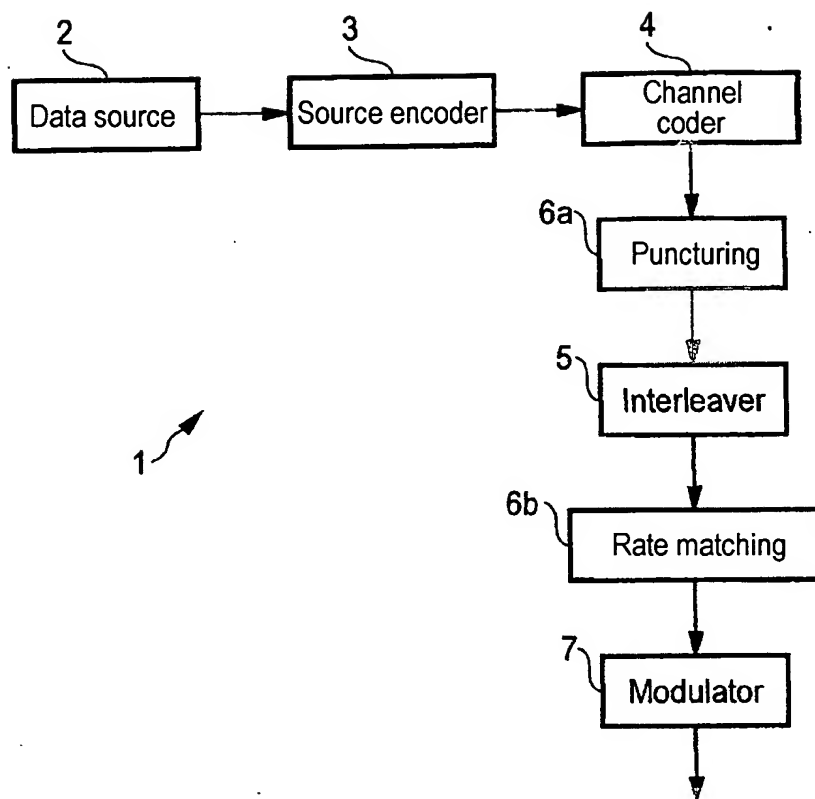# FIG 2

HS-SCCH, Part 2, Pattern 19, FER=1.1×E-02 Error Histogram
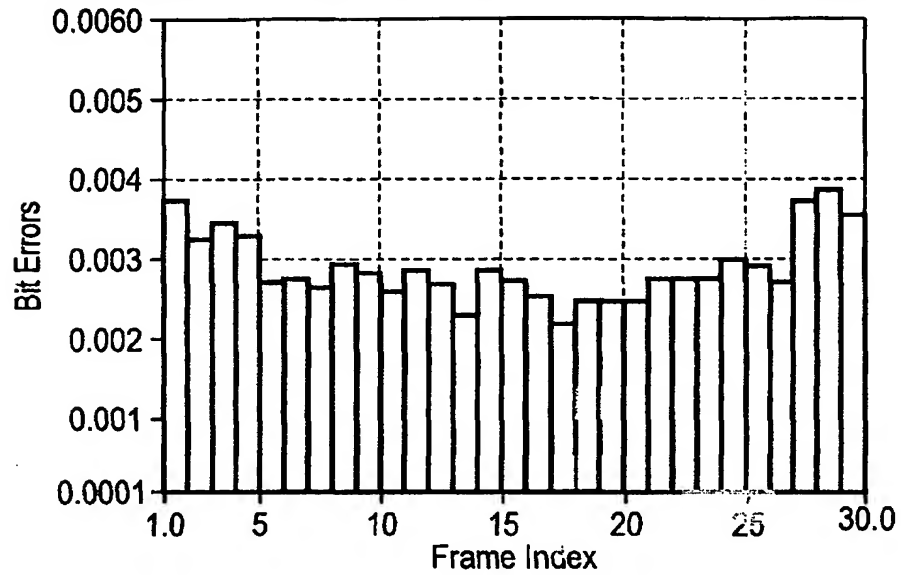

FIG 3

HS-SCCH, Part 2, Pattern 0, FER=1.6×E-02 Error Histogram

FIG 4

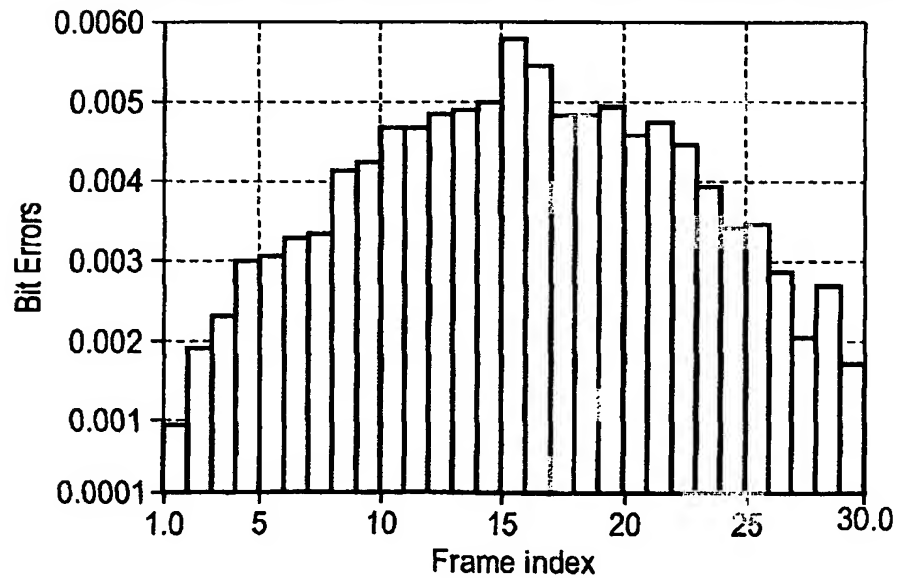Es/N0 [dB]

—✳— hs_scch_111_80_0.dat_1
—○— hs_scch_111_80_19.dat_1

FIG 5

(a) Rate 1/2

Output 0 G_0=561 (octal)

Output 1 G_1=753 (octal)

(b) Rate 1/3

Output 0 G_0=557 (octal)

Output 1 G_1=663 (octal)

Output 2 G_2=711 (octal)

AMENDED SHEET (RULE 26)

FIG 6

HS-SCCH, Part1, Pattern 0, FER=2.8×E-03 Error Histogram
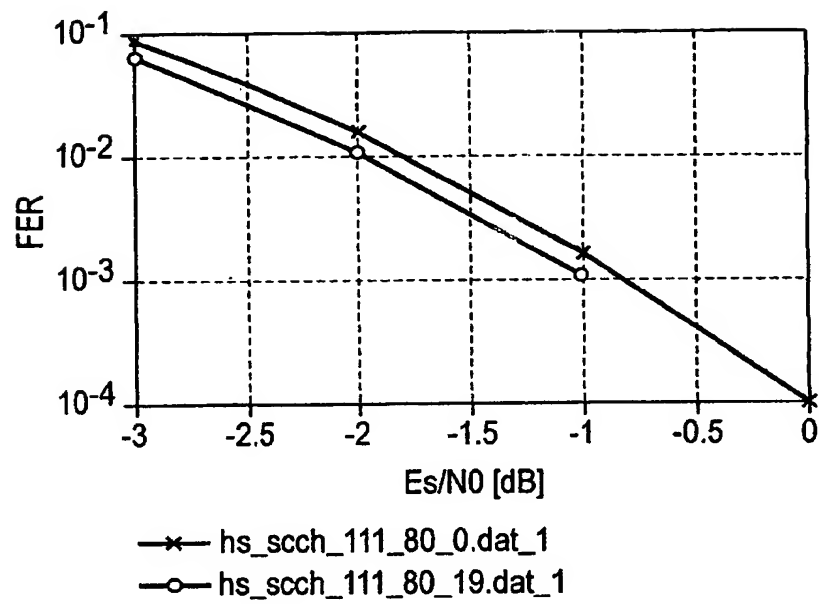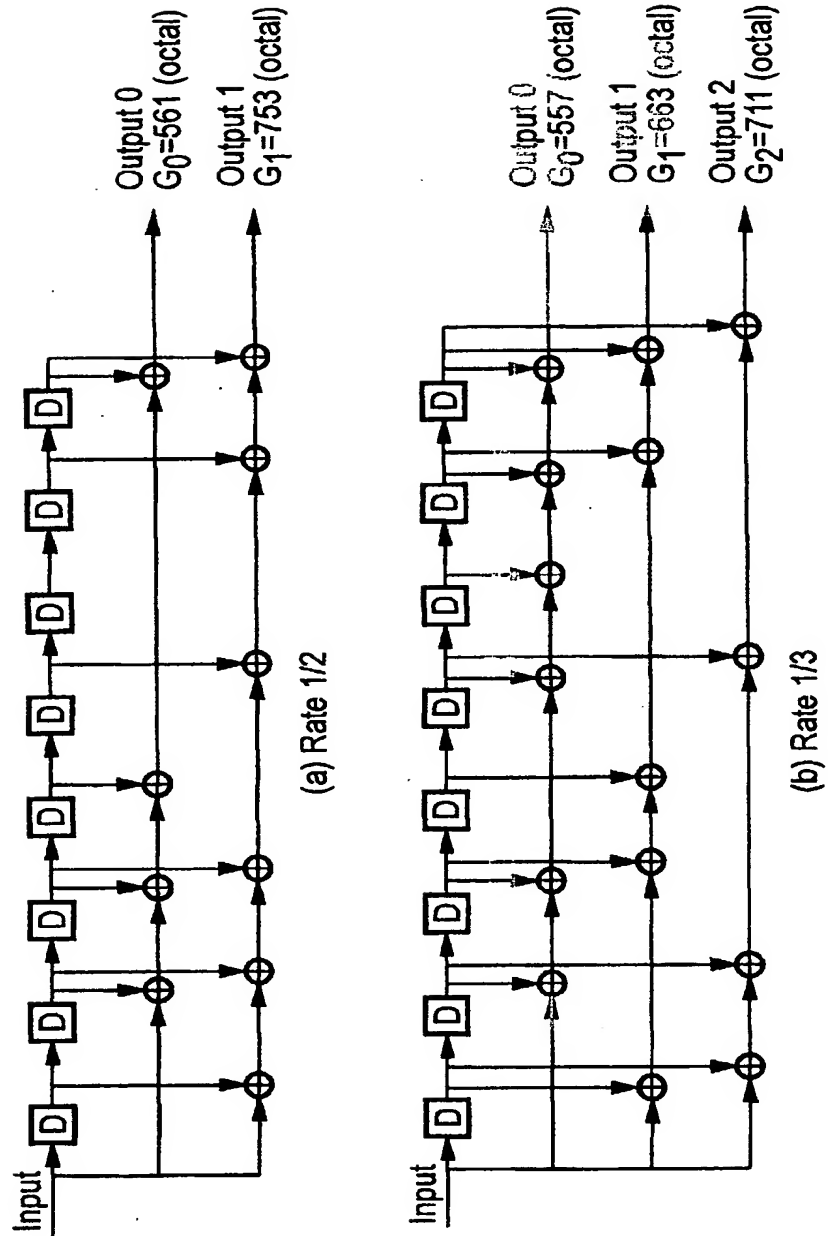
FIG 7

Cumulative puncturing level of the coded bits
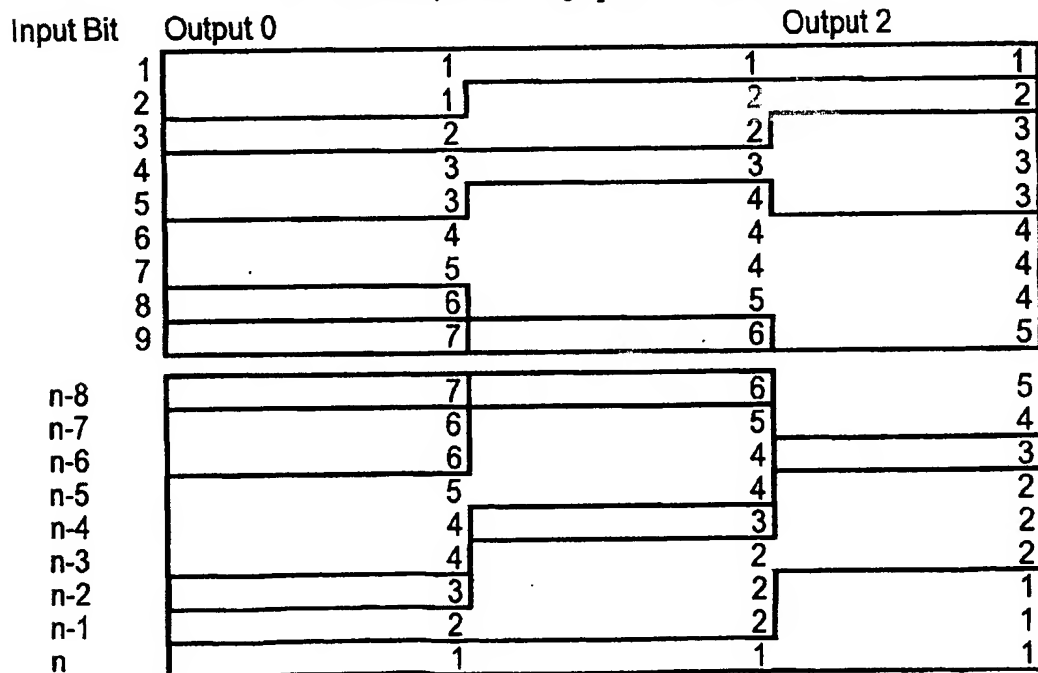
FIG 8

Information bits concerned

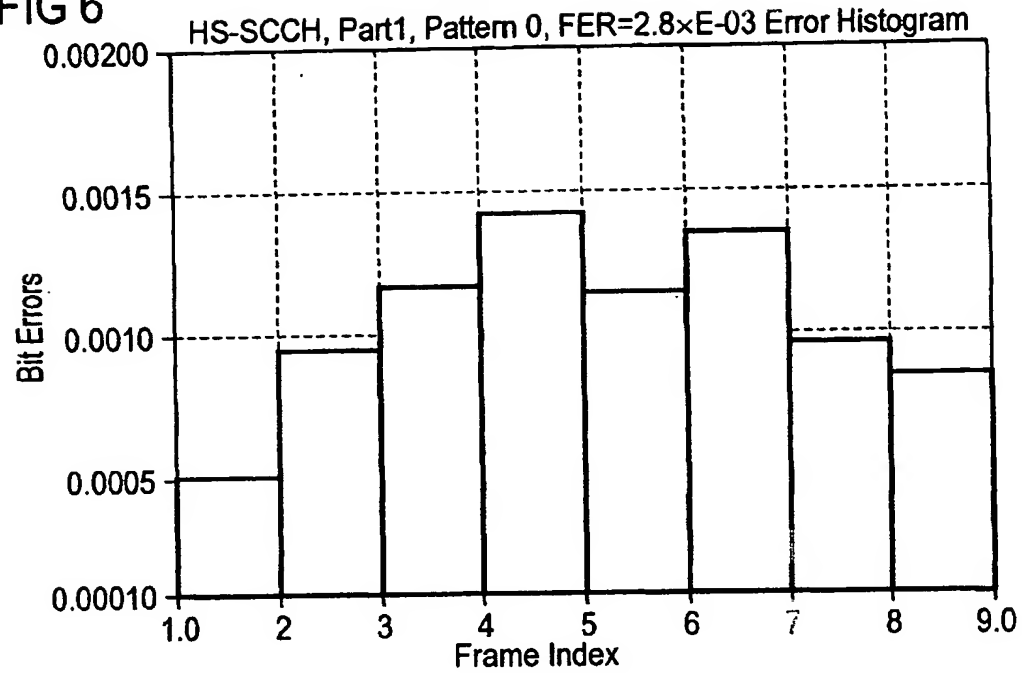| Input Bit	Output 0	Output 1	Output 2
1	1	1	1
2	2	2, 1	2, 1
3	3, 1	3, 2	3, 2, 1
4	4, 2, 1	4, 3, 1	4, 3, 2
5	5, 3, 2	5, 4, 2, 1	5, 4, 3
6	6, 4, 3, 1,	6, 5, 3, 2	6, 5, 4, 1
7	7, 5, 4, 2, 1	7, 5, 4, 3	7, 6, 5, 2
8	8, 6, 5, 3, 2, 1	8, 6, 5, 4, 1	8, 7, 6, 3
9	9, 7, 6, 4, 3, 2, 1	9, 7, 6, 5, 2, 1	9, 8, 7, 4, 1
n-8	0, -2, -3, -5, -6, -7, -8	0, -1, -3, -4, -7, -8	0, -1, -2, -5, -8
n-7	-1, -2, -4, -5, -6, -7	0, -2, -3, -6, -7	0, -1, -4, -7
n-6	0, -1, -3, -4, -5, -6	-1, -2, -5, -6	0, -3, -6
n-5	0, -2, -3, -4, -5	0, -1, -4, -5	-2, -5
n-4	-1, -2, -3, -4,	0, -3, -4	-1, -4
n-3	0, -1, -2, -3	-2, -3	0, -3
n-2	0, -1, -2	-1, -2	-2
n-1	0, -1	0, -1	-1
n	0	0	0

FIG 9

Optimized puncturing pattern
Puncturing sequence and cumulative puncturing for max. 18 input bit

# punct bits	Sequence	1	2	3	4	5	6	7	8	-9	-8	-7	-6	-5	-4	-3	-2	-1	0	Average value	Av. P rate	Cumulative
1	1	1																	1	1,00	0,06	1
2	k	1																	1	1,00	0,06	2
3	4	1			1														1	1,00	0,06	3
4	k-4	1			1										1				1	1,00	0,06	4
5	k-6	1			1								1		1			1	1	1,00	0,06	5
6	2	2	1		1								1		1			1	2	1,20	0,07	6
7	k-1	2	1		1								1		1			1	2	1,40	0,08	7
8	3	3	1	1	1								1		1			1	3	1,60	0,09	8
9	k-2	3	2	1	1								1		1		1	1	3	1,80	0,10	9
10	8	3	2	1	2				3				2		2		1	2	3	1,83	0,10	11
11	k-15	3	3	1	2				3				2	1	2		1	2	3	1,86	0,10	13
12	k-12	3	3	1	2				3			1	2	1	2		2	3	3	1,88	0,10	15
13	k-10	3	3	2	2				3			1	2	1	2		2	3	3	1,89	0,10	17
14	7	4	4	2	2				3			1	2	1	3	1	2	3	4	2,11	0,12	19
15	k-9	4	4	2	2				4	1		1	2	1	3	2	2	4	4	2,33	0,13	21
16	k-7	4	4	2	3				4	1		1	2	1	3	2	3	4	4	2,56	0,14	23
17	5	5	5	2	3	1			4	1		1	2	1	4	2	3	4	5	2,78	0,15	25
18	k-4	5	5	2	4	2			5	1		1	2	1	4	2	4	4	5	3,00	0,17	27
19	6	6	6	3	4	3			5	1		1	2	1	4	3	4	5	6	3,22	0,18	29
20	k-5	6	6	3	4	2			6	1		1	2	2	4	4	4	5	6	3,44	0,19	31
21	15	6	6	4	4	3			6	1		1	2	2	4	2	4	5	6	3,09	0,17	34
22	12	6	6	4	4	2			6	1		1	3	2	4	2	4	5	6	3,36	0,19	37
23	14	6	6	5	5	2			6	1		1	3	2	4	2	4	5	6	3,64	0,20	40
24	k-18	6	6	5	5	3			7	1		1	3	3	4	3	4	5	7	3,58	0,20	43
25	11	7	7	6	5	2			7	1		1	4	3	4	3	4	5	7	3,75	0,21	45
26	k-13	7	7	6	6	2			8	1		1	4	4	5	4	4	5	8	4,00	0,22	48
27	10	8	8	6	6	2			8	1		1	4	4	5	4	4	6	8	4,25	0,24	51
28	k-8	8	8	7	6	2			9	1		1	5	5	5	4	5	6	9	4,50	0,25	54
29	9	9	9	7	7	2			9	1		1	5	5	6	4	6	6	9	4,75	0,26	57

FIG 10

HS-SCCH, Part1, Pattern 3, FER=2.0×E-09 Error Histogram

FIG 11

Puncturing from 48 to 40 bits, R =1/3	
	Bits to be punctured
1	1, 2, 3, 4, 45, 46, 47, 48
2	1, 2, 3, 4, 42, 45, 47, 48
3	**1, 2, 4, 8, 42, 45, 47, 48**
4	1, 2, 4, 15, 42, 45, 47, 48

AMENDED SHEET (RULE 26)

FIG 12A

Punturing from 111 to 80 bits, R=1/3	
Pattern	**Bits to be punctured**
1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 24, 92, 93, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 24, 92, 93, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 48, 60, 93, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 48, 60, 93, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
5	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15, 42, 45, 57, 66, 93, 96, 98, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
6	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 42, 45, 57, 66, 93, 96, 98, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
7	1, 2, 3, 4, 7, 8, 9, 15, 21, 27, 33, 39, 45, 51, 57, 63, 69, 75, 81, 87, 93, 96, 99, 101, 102, 104, 105, 108, 109, 110, 111
8	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 14, 15, 24, 36, 48, 60, 72, 84, 93, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
9	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 15, 24, 36, 48, 60, 72, 84, 93, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
10	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 14, 15, 27, 39, 51, 63, 75, 87, 93, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
11	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 15, 27, 39, 51, 63, 75, 87, 93, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
12	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15, 45, 48, 57, 63, 93, 96, 98, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
13	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 45, 48, 57, 63, 93, 96, 98, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
14	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 14, 15, 24, 36, 48, 54, 60, 72, 84, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
15	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 15, 24, 36, 48, 54, 60, 72, 84, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
16	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15, 45, 48, 51, 57, 63, 93, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111

10/510896

FIG 12B

17	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 45, 48, 51, 57, 63, 93, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
18	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 36, 48, 54, 57, 60, 72, 84, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
19	1, 2, 3, 4, 5, 6, 7, 8, 12, 14, 15, 24, 36, 42, 48, 54, 57, 60, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
20	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 36, 42, 48, 54, 57, 60, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
21	1, 2, 3, 4, 5, 6, 7, 8, 12, 14, 15, 36, 42, 45, 48, 54, 57, 60, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
22	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 36, 42, 45, 48, 54, 57, 60, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
23	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 36, 42, 48, 51, 57, 60, 66, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
24	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 36, 48, 54, 57, 60, 66, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
25	1, 2, 3, 4, 5, 6, 7, 8, 12, 14, 15, 24, 48, 54, 57, 60, 63, 66, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
26	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 48, 54, 57, 60, 63, 66, 72, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
27	1, 2, 3, 4, 5, 6, 7, 8, 13, 15, 24, 36, 42, 48, 51, 57, 60, 66, 72, 92, 96, 99, 101, 102, 104, 105, 107, 108, 109, 110, 111
28	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 48, 54, 57, 60, 66, 69, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
29	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 24, 92, 93, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
30	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 24, 92, 93, 96, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
31	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15, 45, 48, 57, 66, 93, 96, 98, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
32	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 45, 48, 57, 66, 93, 96, 98, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111
33	**1, 2, 3, 4, 5, 6, 7, 8, 12, 14, 15, 24, 42, 48, 54, 57, 60, 66, 69, 96, 99, 101, 102, 104, 105, 106, 107, 108, 109, 110, 111**

FIG 13

Repetition of 8 bits (32 to 40 bits), =1/2	
Pattern	Bits to be repeated
1	17, 19, 21, 23, 25, 27, 29, 31
2	13, 14, 15, 16, 17, 18, 19, 20
3	18, 20, 22, 24, 26, 28, 30, 32
2	16, 18, 20, 22, 24, 26, 28, 30

FIG 14

Repetition of 6 bits (74 to 80 bits), R=1/2	
Pattern	Bits to be repeated
1	35, 36, 37, 38, 39, 40
2	32, 34, 36, 38, 40, 42
3	26, 30, 34, 38, 42, 44
4	20, 28, 36, 44, 52, 60

FIG 15

Repetition of 4 bits (36 to 40 bits), R=1/2	
Pattern	Bits to be repeated
1	16, 18, 20, 22
2	14, 18, 20, 22

FIG 16

Repetition of 14 bits (54 to 40 bits), R=1/3	
Pattern	Bits to be repeated
1	1, 2, 3, 4, 7, 8, 39, 42, 45, 48, 51, 52, 53, 54
2	1, 2, 3, 4, 6, 7, 8, 39, 42, 48, 51, 52, 53, 54
3	1, 2, 3, 4, 7, 8, 36, 39, 42, 48, 51, 52, 53, 54
4	1, 2, 3, 4, 6, 7, 8, 39, 45, 48, 51, 52, 53, 54

AMENDED SHEET (RULE 26)

Additional puncturing pattern from 111 to 80 bits, R=1/3	/3
Pattern	Bits to be punctured
34	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 44, 49, 54, 59, 64, 69 92, 96, 99,101,102,104,106,107,108,109,110,111
35	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 47, 52, 57, 62, 67, 72, 92, 96, 99,101,102,104,106,107,108,109,110,111
36	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 44, 49, 54, 59, 64, 69 92, 96, 99,101,102,104,106,107,108,109,110,111
37	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 43, 47, 57, 61, 65, 69, 92, 96, 99,101,102,104,106,107,108,109,110,111
38	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 39, 42, 44, 49, 54, 59, 64, 69 92, 96, 99,101,102,104,106,107,108,109,110,111
39	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 36, 39, 44, 49, 54, 59, 64, 69 92, 96, 99,101,102,104,106,107,108,109,110,111
40	1, 2, 3, 4, 5, 7, 8, 13, 15, 24, 30, 35, 40, 45, 50, 55, 60, 68, 70, 75, 83, 96, 99,101,102,104,106,108,109,110,111
41	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 45, 51, 57, 63, 69, 75, 92, 96, 99,101,102,104,106,107,108,109,110,111
42	1, 2, 3, 4, 5, 7, 8, 12, 13, 15, 24, 36, 41, 46, 51, 56, 61, 66, 71, 76, 92, 96, 99,101,102,104,106,108,109,110,111

Fig.17

AMENDED SHEET (RULE 26)

Puncturing from 108 to 80 bits, R=1/3
Pattern	Bits to be punctured
1	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 48, 54, 57, 63, 66, 69, 72, 75, 93, 96, 98, 99,101,102,103,104,105,106,107,108

5   Fig.18

Puncturing pattern 114->80, R=1/3

Puncturing from 114 to 80 bits, R=1/3	
Pattern	Bits to be punctured
1	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 45, 48, 54, 57, 60, 66, 69, 72, 75, 99,102,104,105,107,108,109,110,111,112,113,114
2	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 48, 54, 57, 60, 66, 69, 72, 96, 99,102,104,105,107,108,109,110,111,112,113,114
3	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 21, 24, 48,54,57,60,63, 66, 96, 97, 99,102,104,105,107,108,109,110,111,112,113,114
4	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 48, 54, 57, 60, 66, 69, 72, 75, 96, 99,102,104,105,107,108,109,110,111,112,113,114
5	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 45, 48, 54, 57, 60, 66, 69, 72, 75, 96, 99,102,104,105,107,108, 110,111,112,113,114
6	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 15, 24, 42, 48, 54, 57, 60, 66, 69, 72, 75, 96, 99,102,104,105,107,108,110,111,112,113,114
7	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 13, 15, 24, 48, 54, 57, 60, 66, 69, 96, 99,101,102,104,105,107,108,109,110,111,112,113,114

Fig.19

AMENDED SHEET (RULE 26)

Puncturing pattern 117 -> 80, R=1/3

Puncturing pattern from 117 to 80 bits, R = 1/3
Pattern	**Bits to be punctured**
1	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 98,102,105,107,108,110,112,113,114,115,116,117
2	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 98,102,105,107,108,110,112,113,114,115,116,117
3	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 40, 44, 51, 52, 56, 63, 64, 68, 75, 76, 80, 87, 98,102,105,107,108,110,112,113,114,115,116,117
4	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 43, 47, 51, 55, 59, 63, 67, 71, 75, 79, 83, 87, 98,102,105,107,108,110,112,113,114,115,116,117
5	1, 2, 3, 4, 5, 7, 8, 9, 12, 13. 18, 23, 28, 33, 38, 43, 48, 53, 58, 63, 68, 73, 78, 83, 88, 93, 98, 105,106,109,110,111,113,114,115,116,117
6	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 40, 43, 46, 49, 55, 61, 64, 67, 70, 73, 76, 79, 82, 98,102,105,107,108,110,112,113,114,115,116,117
7	1, 2, 3, 4, 5, 7, 8, 12, 13, 15, 20, 24, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 87 98,102,105,107,108,110,112,114,115,116,117
8	1, 2, 3, 4, 5, 7, 8, 12, 13, 15, 24, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 86 98,102,105,107,108,110,112,114,115,116,117
9	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 98,102,105,107,108,110,112,113,114,115,116,117
10	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 42, 45, 48, 54, 60, 63, 66, 69, 72, 75, 78, 81,

AMENDED SHEET (RULE 26)

	98,102,105,107,108,110,112,113,114,115,116,117
11	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 42, 45, 48, 51, 54, 57, 60, 69, 75, 78, 81, 84, 98,102,105,107,108,110,112,113,114,115,116,117
12	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 42, 45, 48,54,57,60, 63, 66, 69, 72, 75, 78, 81, 102,105,107,108,110,111,112,113,114,115,116,117
13	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 42, 45, 48, 54, 60, 63, 66, 69, 72, 75, 78, 81, 84 102,105,107,108,110,112,113,114,115,116,117
14	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 39, 42, 45, 48, 54, 60, 63, 66, 69, 72, 75, 78, 81, 99,102,105,107,108,110,111,113,114,115,116,117
15	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 15, 24, 36, 42, 45, 48, 54, 60, 63, 66, 69, 72, 75, 78, 81, 98,102,105,107,108,110,112,113,114,115,116,117

Fig.20

AMENDED SHEET (RULE 26)

Puncturing pattern 52 -> 40, R=1/2

: Puncturing from 52 to 40 bits, R = 1/2	
Pattern	Bits to be punctured
1	1, 2, 3, 4, 5, 43, 45, 47, 49, 50, 51, 52
2	1, 2, 3, 4, 5, 45, 47, 48, 49, 50, 51, 52
3	1, 2, 3, 4, 15, 25, 45, 47, 49, 50, 51, 52
4	1, 2, 3, 4, 5, 43, 47, 48, 49, 50, 51, 52
5	1, 2, 3, 4, 5, 43, 45, 48, 49, 50, 51, 52
6	1, 2, 3, 4, 5, 25, 45, 47, 48, 49, 51, 52
7	1, 2, 3, 4, 5, 25, 43, 47, 48, 49, 51, 52
8	1, 2, 3, 4, 5, 43, 45, 47, 48, 49, 51, 52
9	1, 2, 3, 4, 15, 43, 45, 47, 48, 49, 51, 52

5

Fig.21

Puncturing pattern 46 -> 40, R=1/2

Puncturing from 46 to 40 bits, R = 1/2 .	
Pattern	Bits to be punctured
1	1, 3, 39, 41, 45, 46
2	1, 3, 39, 41, 43, 46
3	1, 3, 39, 43, 45, 46
4	1, 2, 3, 43, 45, 46
5	1, 2, 39, 41, 45, 46
6	1, 2, 3, 39, 43, 46

10

Fig.22

Puncturimng pattern 54 -> 40, R=1/3

Puncturing from 54 to 40 bits, R=1/3	
Pattern	Bits to be punctured
1	1, 2, 3, 4, 6, 7, 8, 39, 42, 48, 51, 52, 53, 54
2	1, 2, 3, 4, 6, 7, 8, 39, 45, 48, 51, 52, 53, 54
3	1, 2, 3, 4, 7, 8, 39, 42, 45, 48, 51, 52, 53, 54
4	1, 2, 3, 4, 7, 8, 13, 39, 45, 48, 51, 52, 53, 54
5	1, 2, 3, 4, 7, 8, 36, 39, 42, 48, 51, 52, 53, 54

5

Fig.23

Puncturing pattern 56 -> 40, R= 1/2

10

Puncturing from 56 to 40 bits, R = 1/2	
Pattern	Bits to be punctured
1	1, 2, 3, 4, 5, 6, 7, 45, 47, 49, 51, 52, 53, 54, 55, 56
2	1, 2, 3, 4, 5, 6, 15, 45, 47, 49, 51, 52, 53, 54, 55, 56
3	1, 2, 3, 4, 5, 15, 21, 29, 47, 49, 51, 52, 53, 54, 55, 56

Fig.24

AMENDED SHEET (RULE 26)

Repetition pattern 36 -> 40 bits, R=1/2

Repetition of 36 to 40 bits, R=1/2	
Pattern	Bits to be repeated
1	14, 18, 20, 22
2	16, 18, 20, 22
3	14, 17, 10, 23
4	10, 15, 20, 25
5	13, 16, 19, 22

Fig.25

Puncturing of 48 to 40 bits	
Pattern	Bits to be punctured
1	1, 8, 15, 22, 28, 35, 42, 48
2	1, 2, 10, 18, 25, 33, 41, 48
3	1, 2, 3, 12, 21, 30, 39, 48
4	1, 2, 3, 4, 15, 26, 37, 48
5	1, 2, 3, 4, 5, 20, 34, 48
6	1, 2, 3, 4, 5, 6, 27, 48

Fig. 26

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Figure 27: Puncturing of 111 to 80 bits	
Pattern	Bits to be punctured
1	1, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53, 56, 60, 63, 66, 69, 72, 75, 78, 81, 84, 87, 90, 93, 96, 99,102,105,108,111
2	1, 2, 6, 9, 12, 15, 18, 21, 24, 27, 31, 34, 37, 40, 43, 46, 49, 52, 55, 59, 62, 65, 68, 71, 74, 77, 80, 83, 87, 90, 93, 96, 99,102,105,108,111
3	1, 2, 3, 7, 10, 13, 16, 19, 23, 26, 29, 32, 35, 38, 42, 45, 48, 51, 54, 57, 61, 64, 67, 70, 73, 77, 80, 83, 86, 89, 92, 96, 99,102,105,108,111
4	1, 2, 3, 4, 8, 11, 14, 17, 21, 24, 27, 30, 34, 37, 40, 43, 47, 50, 53, 56, 60, 63, 66, 69, 73, 76, 79, 82, 86, 89, 92, 95, 99,102,105,108,111
5	1, 2, 3, 4, 5, 9, 12, 15, 19, 22, 25, 29, 32, 35, 39, 42, 45, 49, 52, 55, 58, 62, 65, 68, 72, 75, 78, 82, 85, 88, 92, 95, 98,102,105,108,111
6	1, 2, 3, 4, 5, 6, 10, 13, 17, 20, 23, 27, 30, 34, 37, 40, 44, 47, 51, 54, 57, 61, 64, 67, 71, 74, 78, 81, 84, 88, 91, 95, 98,101,105,108,111
7	1, 2, 3, 4, 5, 6, 7, 11, 14, 18, 21, 25, 28, 32, 35, 39, 42, 46, 49, 53, 56, 59, 63, 66, 70, 73, 77, 80, 84, 87, 91, 94, 98,101,105,108,111
8	1, 2, 3, 4, 5, 6, 7, 8, 12, 16, 19, 23, 26, 30, 33, 37, 40, 44, 48, 51, 55, 58, 62, 65, 69, 72, 76, 80, 83, 87, 90, 94, 97,101,104,108,111
9	1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 17, 20, 24, 28, 31, 35, 39, 42, 46, 50, 53, 57, 60, 64, 68, 71, 75, 79, 82, 86, 90, 93, 97,101,104,108,111
10	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14, 18, 22, 25, 29, 33, 37, 40, 44, 48, 52, 55, 59, 63, 67, 70, 74, 78, 82, 85, 89, 93, 97,100,104,108,111
11	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 19, 23, 27, 31, 35, 38, 42, 46, 50, 54, 58, 61, 65, 69, 73, 77, 81, 85, 88, 92, 96,100,104,108,111

AMENDED SHEET (RULE 26)

```
        if puncturing is to be performed
5           e = e_ini                    -- initial error between current and desired puncturing ratio

            m = 1                        -- index of current bit

            do while m <= X_i

                e = e - e_minus          -- update error

                if e <= 0 then           -- check if bit number m should be punctured

10                  set bit x_{i,m} to δ where δε{0, 1}

                    e = e + e_plus -- update error

                end if

                m = m + 1                        -- next bit

            end do

15      else

            e = e_ini                    -- initial error between current and desired puncturing ratio

            m = 1                        -- index of current bit

            do while m <= X_i

                e = e - e_minus          -- update error

20              do while e <= 0          -- check if bit number m should be repeated

                    repeat bit x_{i,m}

                    e = e + e_plus       -- update error

                end do

                m = m + 1                       -- next bit

25          end do

        end if
```

Fig. 28